IBM N series N6060 description revised to indicate 672 hard drives supported

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Overview

The IBM® N series N6060 was mistakenly announced as supporting 60 storage control units and 840 hard disk drives. The N6060 supports only 48 storage control units and 672 hard disk drives.

For details, refer to Hardware Announcement AG09-0045, dated February 10, 2009.

Key prerequisites

No new prerequisites are being announced.

Description

The two models feature:

- High data availability and system-level redundancy designed to address the needs of business-critical and mission-critical applications
- Single, integrated architecture designed to support concurrent block I/O and file serving over Ethernet and Fibre Channel SAN infrastructures
- High throughput and fast response times for database, e-mail, and technical applications
- Fibre Channel and Serial Advanced Technology Attachment (SATA) disk drive capabilities that are designed to allow deployment in multiple environments, including data retention, NearStore, disk-to-disk backup scenarios, and high-performance, mission-critical I/O intensive operations
- Support of enterprise customers requiring unified access to Network Attached Storage (NAS) via Fibre Channel (FC) or Internet Small Computer System Interface (iSCSI)
- Attachment of both FC and SATA disk expansion units
- 8 GB (per node) of random access memory
- Four integrated backend FC loops per node
- Upgrade capability from Model A12 to Model A22

The N6060 storage controllers support the EXN1000 SATA storage expansion unit and the EXN2000 and EXN4000 FC storage expansion units. At least one storage expansion unit must be attached to the N6060. The maximum number of storage expansion units that may be attached to either the Model A12 or Model A22 is 48. The EXN1000 storage expansion unit can be configured with 5 to 14 disk drives of 500 GB, 750 GB, or 1 TB physical capacity. The EXN2000 and EXN4000 storage expansion units can be configured with 5 to 14 disk drives of 144 GB, 300 GB, or 450 GB physical storage capacity.

The IBM System Storage^{tm} N6060 storage controllers are designed to interoperate with products capable of data transmission in the industry-standard iSCSI, CIFS, FCP, and NFS

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protocols. These include the IBM System p®, IBM System i® (NFS only), IBM System x®, and IBM System z® (NFS only) servers. The N6060 storage controllers consist of the Model A12 and Model A22, and associated software.

The Model A12 is designed to provide a single-node storage controller with iSCSI support and NFS, CIFS, and FCP support via optional features. The Model A12 is a 6U storage controller that must be mounted in a standard 19-inch rack. The N6060 storage controller does not include storage in the base chassis.

The N6060 base chassis includes:

- 6U, standard 19-inch rackmount enclosure
- Two dual-core 2.4 GHz 64-bit processor (per node)
- 8 GB random access ECC memory (per node)
- Two integrated Gigabit Ethernet RJ45 ports (per node)
- Four integrated 4-Gbps SFP Fibre Channel ports (per node)
- Three PCI-Express (PCIe) X8 expansion slots and one PCIe X4 expansion slot (per node)
- One serial console port (per node)
- One integrated Remote LAN Management (RLM) port (per node)
- Redundant hot-swappable, auto-ranging power supplies and cooling fan

The maximum number of additional (optional) expansion adapters is four per node. The Model A12 and Model A22 support a maximum of ten dual-path FC loops via the addition of four optional FC HBA for Disk Attachment (feature number 1029). Both the Model A12 and Model A22 support a maximum of 672 total disk drives. Both models can be upgraded to a maximum of 18 gigabit Ethernet ports via the addition of four optional quad-port copper NICs (feature number 1022 or 1023). The Model A12 may be upgraded to a Model A22; the upgrade is a disruptive upgrade.

The Model A22 is designed to provide identical function to the Model A22, but with the addition of a second processing node and the Clustered Failover (CFO) licensed function. The Model A22 consists of two storage controllers housed in a single chassis, 6U in height. They are designed to provide failover and failback function, helping improve overall availability.

For the Model A22, the maximum number of additional expansion adapter is eight. The Model A22 can be upgraded to a maximum of 20 multipath FC loops (20 4-Gbps FC ports) via the addition of eight optional FC HBA for Disk Attachments (feature number 1029). The Model A20 can be upgraded to a maximum of 36 Gigabit Ethernet ports via the addition of eight optional quad-port copper gigabit Ethernet NICs (feature number 1022 or 1023).

The N6060 Model A12 storage controller requires at least one storage expanion unit; Model A22 requires a minimum of two. The EXN1000, EXN2000, or EXN4000 satisfy this requirement. The EXN1000 storage expansion unit provides a 3U rack-mountable disk enclosure containing 5, up to a maximum of 14, serial advanced technology attachment (SATA) disk drives, either in 500 GB, 750 GB, or 1 TB physical capacities. The EXN2000 and EXN4000 storage expansion units provide a 3U rack-mountable disk enclosure containing five, and up to a maximum of 14, FC disk drives. The EXN2000 and EXN4000 support the following FC disk drive speeds and capacities:

- 15,000 revolutions per minute (15K RPM) of 144 GB and 300 GB capacities
- 10,000 revolutions per minute (10K RPM) of 144 GB and 300 GB capacities

The maximum raw storage capacity of the N6060 systems is determined by the number of disk drives supported. The N6060 Model A12 and Model A22 each support 672 hard drive spindles.

The following table describes the maximum supported total physical storage capacity for the N6060 Model A12 and Model A22:

Disk enclosure	Disk drive capacity	Maximum storage enclosures	Maximum disk drives	Maximum physical capacity
EXN1000	250 GB SATA disk drives	48	672	168.00 TB
EXN1000	500 GB SATA disk drives	48	672	336.00 TB
EXN1000	750 GB SATA disk drives	48	672	504.00 TB

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EXN1000    1 TB SATA disk drives     48       672      672.00 TB
EXN2000    144 GB FC disk drives     48       672       96.76 TB
EXN2000    300 GB FC disk drives     48       672      201.60 TB
EXN4000    144 GB FC disk drives     48       672       96.76 TB
EXN4000    300 GB FC disk drives     48       672      201.60 TB
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EXN1000 SATA storage expansion units, and EXN2000 and EXN4000 FC storage expansion units, must not share a Fibre Channel loop. A maximum of six storage expansion units are supported on a single Fibre Channel loop.

Reference information

For the original announcement of the N6060, refer to Hardware Announcement AG09-0045, dated February 10, 2009.

Product number

No new products or features are being announced. The Description section of the N6060 announcement is being revised.

AP distribution

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Country/Region              Announced

AP IOT
 ASEAN*                      Yes
 India/South Asia**          Yes
 Australia                   Yes
 People's Republic of China  Yes
 Hong Kong S.A.R of the PRC  Yes
 Macao S.A.R of the PRC      Yes
 Taiwan                      Yes
 Korea                       Yes
 New Zealand                 Yes
Japan IOT
 Japan                       Yes


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 **Bangladesh, Bhutan, India, Sri Lanka, Maldives, Nepal, and Afghanistan
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